Remarks / Arguments

Claims 1 and 17 are amended. New claims 26 and 27 have been added. Claims 1-12, 17 and 19-27 are pending in the application. Support for new claims 26 and 27 can be found on at least page 13 of the specification. Support for the amendments can be found at least at page 14 of the specification and attached Exhibits A and B. No new matter has been added. Reexamination and reconsideration of the application, as amended, are respectfully requested.

As a preliminary matter, the applicant would like to thank the Examiner for participating in a telephone interview on December 6, 2010 in which, among other things, the Examiner's obviousness *vel non* rejection of the present invention was discussed in view of the Takeshi and Fujimori references, taking into account the attached Exhibits A and B. As discussed in the interview, these Exhibits show, respectively, the anisotropic magnetic field strength and magnetic permeabilities of (A) the invention disclosed in Takeshi and (B) the present invention, as calculated using Landau-Liftshitz-Gilbert (LLG) equations. They show that the invention described in Takeshi has an anisotropic magnetic field strength of generally between 7 and 10 Oe and permeability that drops precipitously in the GHz region, whereas an exemplary embodiment of the present invention has an anisotropic magnetic field strength of around 70 to 75 Oe and permeability that remains high in the GHz region. As discussed during the interview, applicant submits that these Exhibits show unexpected results in overcoming the prior art. The Examiner generally indicated that such evidence of secondary considerations of nonobviousness may be sufficient to put the case in condition for allowance. These Exhibits are discussed further below, and are additionally discussed in the attached sheet providing the conditions used in generating Figures A and B.

Claim Rejections Under 35 U.S.C. § 112, first paragraph

Claims 1-12, 17 and 19-25 stand rejected under 35 U.S.C. § 112, first paragraph as failing to describe "granular ferromagnetic metal particle" in the specification so as to allow one reasonably skilled in the art to "recognize that the ferromagnetic material is a granular ferromagnetic material." Applicant respectfully traverses this rejection.

While applicant believes that its ferromagnetic metal particles are "granular" in that they have a granular shape, i.e., that of a small particle (see Figure 1), Claims 1 and 17 have been amended to delete the term "granular" before "ferromagnetic metal particles" for the sake of clarity. Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 1-12, 17, 19, 20, 22, 24 and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Takeshi et al. (JP 02-201904) in view of Fujimori (JP 10-189322 A). Claims 21 and 23 stand rejected under § 103(a) as being unpatentable over Takeshi in view of Fujimori, further in view of Gay et al. (U.S. Patent No. 5,629,092).

Claims 1 and 17 have been amended to indicate that the granular structure of the present invention has an anisotropic magnetic field strength of approximately 50 to about 75 Oe. As noted above, support for this amendment can be found on at least page 14 of the specification, which provides that the thin film of the present invention "can have a[n] anisotropic magnetic field [strength] of ... preferably 50 Oe (3978 A/m) or more, further preferably 70 Oe (5570 A/m) or more." Indeed, as shown more fully in attached Exhibit B, the anisotropic field strength of four exemplary embodiments of the present invention are 75, 70, 70 and 75 Oe respectively.

By contrast, Takeshi fails to disclose magnetic thin films or granular substances with such high anisotropic magnetic field strengths. Indeed, even though the invention disclosed in Takeshi is comprised of ferromagnetic metal particles dispersed within a polymer, attached Exhibit A shows that the anisotropic magnetic field strengths of the four examples provided for in Takeshi (see Table 1) are 7, 10, 10 and 8 Oe respectively, which are significantly lower than the anisotropic magnetic field strengths claimed herein. These values were calculated by LLG "equation fitting" using the data for each Example listed in Table 1 of Takeshi. For example, when calculating the anisotropic magnetic field strength of Takeshi's Example 1, the saturation magnetization was assumed to be 1. 5 T, the resistivity was assumed to be 180 X 10^{-6} Ωcm, the film thickness was assumed to be 5 μm, and the magnetic permeability was assumed to be 2000 at 0.1MHz, as described therein in Table 1.

Fujimori, moreover, does not disclose anisotropic magnetic field strengths for its disclosed magnetic thin films. Accordingly, it, too, does not disclose the claimed feature.

Furthermore, even if Fujimori disclosed anisotropic magnetic field strengths, it would not have been obvious for one skilled in the art to rely on Fujimori to augment the invention disclosed in Takeshi in such a way so as to create the present invention. Fujimori discloses a magnetic thin film that consists of ferromagnetic metal phases and ferromagnetic insulating phases. Indeed, Fujimori provides:

> [0012] ... a magnetic thin film in which a ferromagnetic metal phase and a ferromagnetic insulating phase having resistivity of 1000 μΩcm or more are present, and an average grain size of metal grains constituting the ferromagnetic metal phase is 20 nm or less.
> ...
> [0022] As a material constituting the ferromagnetic insulating phase used in the present invention...
> ...

Fujimori at paragraphs 0012-0022. In contrast, the granular substance of claims 1 and 17 essentially consists of ferromagnetic particles and a nonmagnetic insulating organic material. The ferromagnetic insulating phase of Fujimori does not correspond to the nonmagnetic insulating organic material of present claims 1 and 17.

Claims 1 and 17 state that the volume ratio of the nonmagnetic insulating material in the granular substance is in the range of 5 to 50%. The granular substance of the present invention is designed in order for the nonmagnetic insulating organic material to have a suitable thickness between the ferromagnetic particles, and lead to obtain a high resistivity while the exchange coupling between the ferromagnetic metal particles in enabled. In contrast, Fujimori fails to disclose or suggest how to set the volume ratio of the nonmagnetic insulating material.

Since the magnetic thin film of Fujimori consists of ferromagnetic metal phases and ferromagnetic insulating phases, other magnetic moment interferes with the exchange coupling between the ferromagnetic metal particles. Thus, the mechanism of magnetism in Fujimori is different from that in the present granular substance in which the exchange coupling between the ferromagnetic metal particles is enabled.

Accordingly, one skilled in the art would likely not have considered applying the teachings of Fujimori to Takeshi.

Therefore, claims 1 and 17 are not obvious in light of Takeshi further in view of Fujimori. Claims 2-12 and 19-27, which depend on these claims, are also patentable for at least the same reasons.

CONCLUSION

In view of the foregoing, Applicant respectfully requests that the Office withdraw the rejection. Accordingly, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Washington, D.C. telephone number (202) 637-5703 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,

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Date: December 28, 2010

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